

Real Estate Investment Analysis
Fall 2004

Midterm Exam 2 – Version A

Dr. Stanley D. Longhofer
MW 9:30-10:45

You have 1 hour and 15 minutes to complete this exam. I know its long; don't worry, just do the best you can in the time allotted. I would spend a few minutes looking it over before you begin; start with the questions you know best and work on the others last. The number of points for each question is intended to indicate how much time you should spend on each. This weighting incorporates both the time it should take you to answer the question and its relative importance.

I've tried to eliminate any ambiguity about how to interpret the questions on the exam. Nevertheless, if you make any assumptions not explicitly stated in the questions, make sure you write them down so I can see what you are doing.

Finally, *remember to show your work*. I can only give partial credit for incorrect answers if I can tell what you were trying to do.

- 1) (40 points) George is considering investing in a 135,000 square foot office building near Waco, TX. Market rents in this area are expected to average \$8.50 per square foot, increasing by 2.00 percent per year for the foreseeable future. The average vacancy rate for similar office space is 15 percent, and the operating expense ratio for the building is 40 percent. The tax assessor's office currently estimates the value of the building to be \$6 million, with \$1 million of this value attributable to land. A recent appraisal estimated the value to be \$5 million, with \$500,000 of this value attributable to land. Georges expects that he can purchase this building for \$4.8 million, with acquisition costs of 3 percent of the purchase price.

Financing is available for up to 75 percent of the purchase price, with a 5-year balloon loan, 7.25 percent interest, monthly payments amortized over 20 years, and 1.5 points in closing costs.

The property will be put in service on January 1, 2005. The expected holding period is 5 years (expected sale date of December 31, 2009), at which time it will be sold at a 12 percent cap rate (based on projected NOI for 2010). Transaction costs at the time of sale are expected to be 7 percent of the gross sale price.

George is at the 35 percent rate on ordinary income, 25 percent for depreciation recapture, and 15 percent for long-term capital gains.

Name _____

- a) Calculate expected *first-year* NOI for this property. At what cap rate is George purchasing this property? What is the before-tax cash flow for this property? What is George's cash-on-cash return?

Name _____

- b) Calculate the taxable income and after-tax cash flow for this property for the **FIRST YEAR ONLY!!!** Clearly label each of the elements required to derive taxable income and show your work. Remember, I can only give partial credit if I can follow what you have done.

Name _____

- c) Assume that projected NOI for the sixth year is \$646,136. Calculate the before- and after-tax equity reversion from the sale of this property at the end of year 5. Once again, clearly label each of the figures you calculate to derive these figures.

Name _____

- d) If cash flow after taxes from operations in years 2 through 5 will be \$178,486, \$183,900, \$189,294, and \$192,991, calculate the after-tax NPV of this investment at a 14 percent discount rate. What is the after-tax IRR of this investment? Based on this analysis, is this a worthwhile investment for George?

- 2) (10 points) John is analyzing an apartment investment with the following characteristics:

Potential gross income	\$2,000,000
– Vacancy allowance	<u>(200,000)</u>
Effective gross income	1,800,000
– Operating expenses	<u>630,000</u>
Net operating income	\$1,170,000

The preliminary estimate of value for this property is \$13 million.

Edwards Mortgage is willing to provide a 5-year balloon loan at 7.50 percent on a 20-year amortization schedule with monthly payments. The minimum debt-coverage ratio (DCR) is 1.25 and the maximum loan-to-value (LTV) ratio is 75 percent.

- a) (8 points) Based on John's preliminary forecast and his lender's underwriting criteria, what is the maximum loan amount John can expect?

- b) (2 points) Based on the loan amount you calculated in part (a), what is the annual debt service on this loan? What is the resulting debt-coverage ratio?

Multiple Choice Questions (2 points each)

- _____ 1. Which of the following statements is true for a property that exhibits positive financial leverage? More than one answer may be correct; write down all correct answers.
- A. The mortgage constant is greater than the cap rate.
 - B. The cash-on-cash return is greater than the cap rate.
 - C. The mortgage constant is greater than the cash-on-cash return.
 - D. The property has too much debt.
 - E. Additional debt will raise the investor's cash-on-cash return.

Use the following information to answer the next three questions.

Brownback LLC is purchasing an office building for \$5 million. Thiant Financial is providing a \$3,000,000 mortgage to help finance this purchase. This will be a 10-year balloon mortgage amortized over 30 years with monthly payments at an interest rate of 7.25 percent.

The first payment on this mortgage will be due on March 1st.

- _____ 2. How much interest will Brownback pay during the first tax year? (Assume that the tax year corresponds with the calendar year.)
- A. \$216,548
 - B. \$180,312
 - C. \$180,603
 - D. \$181,250
 - E. None of the above. The correct answer is _____.
- _____ 3. How much interest will Brownback pay during the second tax year?
- A. \$214,371
 - B. \$232,538
 - C. \$214,745
 - D. \$217,500
 - E. None of the above. The correct answer is _____.
- _____ 4. How large will the balloon payment be at the end of the loan's term?
- A. \$544,165
 - B. \$2,831,363
 - C. \$2,000,000
 - D. \$0
 - E. None of the above. The correct answer is _____.

Use the following information to answer the next seven questions:

Consider a property with the following pro forma operating statement:

PGI	\$1,200,000
– V&C	60,000
EGI	1,140,000
– OE	456,000
NOI	\$684,000

This property can be purchased for \$8.55 million. Financing is available for 75 percent of the purchase price over 25 years at 6.50 percent interest with annual debt service payments of \$519,572.

- _____ 5. What is this property's gross income multiplier?
- A. 7.50
 - B. 12.50
 - C. 8.00
 - D. 13.33
 - E. None of the above. The correct answer is _____.
- _____ 6. What is this property's net income multiplier?
- A. 7.50
 - B. 12.50
 - C. 8.00
 - D. 13.33
 - E. None of the above. The correct answer is _____.
- _____ 7. What is this property's operating expense ratio?
- A. 5.00%
 - B. 40.00%
 - C. 38.00%
 - D. 57.00%
 - E. None of the above. The correct answer is _____.
- _____ 8. What is this property's debt-coverage ratio?
- A. 1.32
 - B. 2.31
 - C. 1.17
 - D. 0.86
 - E. None of the above. The correct answer is _____.

- _____ 9. What is this property's breakeven ratio?
- A. 1.32
 - B. 2.31
 - C. 1.17
 - D. 0.86
 - E. None of the above. The correct answer is _____.
- _____ 10. What is this property's cash-on-cash return?
- A. 8.00%
 - B. 1.92%
 - C. 7.69%
 - D. 12.5%
 - E. None of the above. The correct answer is _____.
- _____ 11. Based on the previous calculation, this investment exhibits _____ financial leverage.
- A. positive
 - B. negative
 - C. neutral
 - D. credible
 - E. There is not enough information to determine financial leverage.
- _____ 12. True or False: A recourse loan is one in which the interest rate can change in the future based on market conditions.
- _____ 13. Which of the following factors do commercial lenders typically consider when underwriting existing income properties. More than one answer may be correct; write down all correct answers.
- A. The property's net operating income
 - B. The creditworthiness of the tenants with leases on the property
 - C. The appraised value of the property in relation to the loan amount
 - D. The investor's creditworthiness
 - E. The mix of the tenants in the property
 - F. The terms and conditions of the leases in the property
 - G. The quality, size and age of the property

- _____ 14. Ralph has just purchased a property using a \$660,000 cash down payment and a \$1.54 million mortgage. In purchasing this property, he incurred \$100,000 in due diligence expenses and miscellaneous closing costs, and \$50,000 in loan fees. What is Ralph's initial tax basis in this property?
- A. \$770,000
 - B. \$2,300,000
 - C. \$2,350,000
 - D. \$820,000
 - E. None of the above. The correct answer is _____.
- _____ 15. True or False: The income tax due from a property is based on its before-tax cash flow.
- _____ 16. Badnarik Enterprises recently purchased a property with an initial tax basis of \$14.5 million. A recent appraisal of this property estimated the value of the land to be \$2 million and the value of the improvements to be \$8 million. The tax assessor estimates the value of the land to be \$1.2 million and the value of the improvements to be \$10.8 million. What is Badnarik's depreciable basis in this property?
- A. \$11.60 million
 - B. \$14.50 million
 - C. \$13.05 million
 - D. \$10.80 million
 - E. \$8.00 million
- _____ 17. What is the depreciation allowance in the first year for a residential property with a depreciable basis of \$800,000 that was put into service on September 31st of the year?
- A. \$29,091
 - B. \$20,513
 - C. \$8,485
 - D. \$6,061
 - E. None of the above. The correct answer is _____.
- _____ 18. If the property in the previous question is held for five years, what is the depreciation allowance in the second year?
- A. \$29,091
 - B. \$20,513
 - C. \$8,485
 - D. \$6,061
 - E. None of the above. The correct answer is _____.

- _____ 19. You purchased an industrial warehouse property ten years ago with an initial tax basis \$3.2 million and sold it on June 3rd of this year. What is the depreciation allowance you can claim on this property this year?
- A. \$82,051
 - B. \$116,364
 - C. \$37,607
 - D. \$44,444
 - E. None of the above. The correct answer is _____.
- _____ 20. Peroutka LLP purchased a shopping center for \$600,000 cash and a \$2.4 million 10-year balloon mortgage amortized over 25 years. The lender charged Peroutka 2 points in conjunction with this loan. What is Peroutka's annual amortization expense associated with this loan?
- A. \$4,800
 - B. \$48,000
 - C. \$1,920
 - D. \$6,000
 - E. None of the above. The correct answer is _____.
- _____ 21. Lee Jones purchased a commercial office building 15 years ago. Its initial tax basis was \$2 million, of which 80 percent was attributable to the building. The building was put into service on January 1 in the year of acquisition and will be sold on December 31st of this year. What is Mr. Jones' adjusted tax basis in this property at the time of the sale?
- A. \$1,235,043
 - B. \$1,230,769
 - C. \$1,388,034
 - D. \$988,034
 - E. None of the above. The correct answer is _____.
- _____ 22. Michael Kinard recently sold a property for \$13 million. His initial tax basis in this property was \$8 million, his depreciable basis was \$7 million, and he claimed \$1.5 million in depreciation allowances over his holding period. He incurred transaction costs of 7 percent of the gross sale price. What is Mr. Kinard's total gain on this sale?
- A. \$5.50 million
 - B. \$5.59 million
 - C. \$5.00 million
 - D. \$6.50 million
 - E. None of the above. The correct answer is _____.

- _____ 23. How much of the gain in the above question will be taxed at the depreciation recapture rate (25 percent)?
- A. All of it
 - B. \$1.50 million
 - C. \$5.00 million
 - D. \$4.09 million
 - E. None of the above. The correct answer is _____.
- _____ 24. True or False: A property that exhibits negative leverage is a bad investment.
- _____ 25. True or False: A property can generate positive taxable income even as it generates negative cash flows.
- _____ 26. (Freebe) What do all of the names used in this exam have in common?
- A. They are all cartoon characters.
 - B. They were all candidates in the recent election.
 - C. They are all notorious criminals.
 - D. They all need to take Dr. Longhofer's real estate classes.
 - E. All of the above.